

ATTACHMENT 2

U.S. Energy Collaborative Analysis Initiative 2007 Workshop Proposed Agenda (as of May 22, 2007)

Timing	Activities
DAY 1	
8:00 am	Continental Breakfast
8:30 am Continental breakfast	Welcome, introductions, initiative and workshop goals, initiative vision
9:30 am – 12:30 pm (Break at ~10:45 am)	Concurrent breakout sessions (First Grouping)
	Topic #A – Improve behavioral factors in market/choice models and tools
	Topic #B – Energy model data resources
	Topic #C – Integrated energy and environmental scenarios
12:30 pm	Lunch
2:00 pm	Present results/follow-up activities for Topics A, B and C
2:45 pm	Break
3:00 pm	Plenary session – Modeling aggressive renewable energy goals (e.g. 25% by 2025)
5:00 pm	Adjourn
Evening	Join together for social dinner together, off-site

DAY 2	
8:00 am	Continental Breakfast
8:30 am – 11:30 am (Break at ~10:00 am)	Concurrent breakout sessions (Second Grouping)
	Topic #D – Improve economic impact evaluation tools and methodologies
	Topic #E – Risk and uncertainty in energy modeling
11:30 am	Present results/follow-up activities for Topics D and E
Noon	Working lunch to identify additional topics of importance for the initiative
1:30	Wrap-up - improve sharing of info/methods - and next steps
2:00	Adjourn

Details of session structures and speakers are attached.

Day 1 - Breakout Session A

Improve Behavioral Factors in Market/Choice Models and Tools

Energy Collaborative Analysis Workshop – June 2007

Expert team: Bill Valdez (DOE-O.Sc.)
Steve Smith (PNNL)
Dave Bjornstad (ORNL)
Walter Short (NREL)
Alan Sanstad (LBNL)
Donna Hostick (PNNL)

Facilitator: Gail Mosey (NREL)

High priority analysis questions to address during session:

- What is a better analytical way of representing choice?
- How do analysts better investigate and estimate behavioral parameters?
- How can analysts get a better sense of distributions when estimating parameters?

Type of models and tools that may use behavioral factors as inputs:

- R&D planning
- Integrated assessment
- Policy development and assessment

Session Structure:

1. Brief introduction of speakers and statement of session objective and structure
2. Current state of the art in behavioral factors in *R&D* modeling, to include a status update on analysis activities since ECAI WS 2006. Provide views on analysis questions above.
3. Current state of the art in behavioral factors in *integrated assessment* modeling. Provide views on analysis questions above. ***Speaker suggestions? Include??***
4. Current state of the art in behavioral factors in *policy development and assessment* modeling. Provide views on analysis questions above.
5. Panel discussion to address questions and issues. Focus discussion around analysis questions:
 - What is a better analytical way of representing choice?
 - How do analysts better investigate and estimate behavioral parameters?
 - How can analysts get a better sense of distributions when estimating parameters?
6. Group discussions, to include identification of gaps, future analysis activities and potential for collaboration
7. Synthesis and wrap-up, solutions identified in group discussion (and captured on storyboards) will be arranged and the group will layout steps to take action and identify potential collaboration

Day 1 - Breakout Session A
Improve Behavioral Factors in Market/Choice Models and Tools
Energy Collaborative Analysis Workshop – June 2007

Table 1. Proposed Structure for Session Improve Economic Impact Evaluation

Format/Time	Topic	Analysis Issue	Potential Speaker	Speaker Status
1. Intro (5 minutes)	Introduction	What are the session objectives and how is the session structured?	Bill Valdez or Gail Mosey	Confirmed
2. Presentation (25 minutes)	R&D	Current state of the art in behavioral factors in R&D modeling. Status update on analysis activities since ECAI WS 2006	Bill Valdez, DOE Office of Science (or another rep from O.Sc.)	Confirmed
3. Presentation (25 minutes)	Integrated assessment	Current state of the art in behavioral factors in integrated assessment modeling	TBD	TBD
4. Presentation (25 minutes)	Policy development and assessment	Current state of the art in behavioral factors in policy development and assessment modeling	Tom Fiddaman, Ventana Systems	Contacted, likely. Office of Science may provide funding
Break	(10 minutes)			
5. Panel (30 minutes)	Panel discussion	Address questions from participants. Focus discussion around analysis questions.	Rep from each topic	Panel
6. Breakout Group Discussion (35 minutes)	Concurrent breakout group discussion, to include id of gaps and needs for improvement and future analysis activities	R&D	Participants	NA
		Integrated Assessment	Participants	NA
		Policy Development and Assessment	Participants	NA
7. Synthesis and Wrap-Up (25 minutes)	Synthesis and wrap-up	Solutions identified in group discussion (and captured on storyboards) will be arranged and the group will layout steps to take action and identify potential collaboration	All with Session Facilitator	

Day 1 - Breakout Session B
Energy Model Data Resources
Energy Collaborative Analysis Workshop – June 2007

This session will involve three presentations on an area of energy modeling where access to data is currently a limiting factor. Each presentation will be followed by a facilitated discussion of challenges and potential avenues for improvement.

Modeling data issues in the area of technology characterization. (40 minutes)

- Presentation by Susan Holte of EIA on technology characterization data resources and limitations.

Group Discussion

- What are data issues/shortcomings faced by modelers?
- What data sources exist that might address these issues?
- What can/should be done to address the unmet needs identified?

Group discussion of modeling data issues in the area of energy transmission? (40 minutes)

- Presentation by ??? on energy transmission data resources and limitations.

Group Discussion

- What are data issues/shortcomings faced by modelers?
- What data sources exist that might address these issues?
- What can/should be done to address the unmet needs identified?

Group discussion of modeling data issues in the area of resource cost/supply (40 minutes)

- Presentation by ??? on resource cost/supply data resources and limitations.

Group Discussion

- What are data issues/shortcomings faced by modelers?
- What data sources exist that might address these issues?
- What can/should be done to address the unmet needs identified?

Group action planning to meet energy modeling data needs. (30 minutes)

Solutions identified in previous group discussions (and captured on the storyboards) will be arranged and the group will lay out steps to take action.

Synthesis and Wrap-Up (10 minutes)

Day 1 - Breakout Session C

Integrated Energy and Environmental Scenarios

Energy Collaborative Analysis Workshop – June 2007

Expert Team: Ron Benioff, NREL
Kevin Culligan, EPA
Dan Loughlin, EPA – Research Triangle
Michael Shelby, EPA
Gary Kleiman, NESCAUM
Laura Vimmerstedt, NREL

Facilitators: Ron Benioff, NREL and Karlynn Cory, NREL

Focus of Session: Improving the integration of energy and environmental scenarios in modeling and planning, including (1) the benefits of and ability to integrate energy and environmental modeling, (2) accounting for uncertainty using a broad range of forecasts and (3) evaluating interactions and trade-offs at regional and national levels

SESSION STRUCTURE

(1) What Steps Will Better Integrate Energy and Environmental Modeling and Planning? (40 minutes)

- *Questions*
 - What are the primary needs that energy analysts and planners have for improved air pollution control forecasts, scenarios and data?
 - What are the primary needs that air quality analysts and planners have for improved energy forecasts, scenarios, and data?
- Presentation by energy expert on how energy scenarios are currently used and the ability of energy models to incorporate air pollution control regulatory scenarios and data (10 minutes) – **Michael Leifman, DOE (confirmed)**
- Presentation by air quality expert on how air quality scenarios are currently used and needs for improved energy scenarios and data (10 minutes) – **Dan Loughlin, EPA (confirmed)**
- Facilitated Discussion (20 minutes)

(2) How Can Environmental and Energy Modeling and Planning Account for a Broad Range of Forecasts and Uncertainty? (45 minutes)

- *Questions*
 - How does treatment of uncertainty influence conclusions that can be drawn from the analysis?
 - What are some practical methods for accounting for uncertainty?
- Overview of Key Issues (20 minutes)
 - **Walter Short, NREL (invited)**
 - **Dwayne Breger, MA and RGGI participant (interested – checking into internal travel approvals)**
- Group Discussion (25 minutes)

Day 1 - Breakout Session C
Integrated Energy and Environmental Scenarios
Energy Collaborative Analysis Workshop – June 2007

SESSION BREAK HERE (10 min)

(3) How Can We Improve Methods and Tools for Evaluating Interactions and Tradeoffs Between Environmental and Energy Options at National and Regional Levels? (70 minutes)

- *Questions*
 - What steps can be taken to improve use of multi-pollutant, multi-media, and life cycle analysis?
 - How can state and regional air quality and energy analysis and plans better account for interactions and tradeoffs between environmental and energy options?
- Presentation on Current Methods and Tools (15 minutes) – **Gary Kleiman, NESCAUM (confirmed)**
- Additional Panel Member Remarks on Key Issues (20 minutes)
 - **Denise Mulholland, EPA (confirmed)**
 - **Bill Becker, NACAA/STAPPA-ALAPCO (interested – checking to see who is appropriate to send)**
 - **Doug Larson, WECC (invited)**
- Group Discussion (45 minutes)

Synthesis and Wrap-Up (10 minutes)

- Karlynn Cory, NREL

Questions for Leadership Committee

- Are there too many speakers?
- Will there be enough time for discussion and collaboration on energy analysis?

Day 2 - Breakout Session D
Improve Economic Impact Evaluation Tools and Methodologies
Energy Collaborative Analysis Workshop – June 2007

Expert Team: Jennifer DeCesaro (CESA)
Russ Lee (ORNL)
Skip Laitner (ACEEE)

Facilitator: Gail Mosey (NREL)

Focus of session: Economic impact evaluation methodologies and tools that can be applied to full range of energy efficiency and renewable energy technologies, projects and policies.

Questions to address:

What are the tools?

What is the methodology behind the tools?

Where are these tools found?

Who is using them?

What are the gaps and limitations to these tools, the pros and cons of the tools?

Structure:

1. Brief introduction of speakers.

2. Overview of current impact evaluation tools and analysis giving a sampling of the current analysis activities in this arena for economics, environment and security. State the session objective.

The importance of environment and security impact evaluation tools will be stressed here, but it will be stated that economic impact evaluation tools will be focused on during this session due to the progressed nature of economic impact evaluation tools.

3. Theory: Estimating and analyzing economic impacts, including possible improvements and gaps in tools and methodologies.

Discuss theory behind approaches for estimating and analyzing economic impact.

4. Implementation: Application of economic impact evaluation (1 hour total, 20 minutes each):

a. Status updates of economic impact evaluation analysis activities since ECAI WS06.

The recent activity and progress taken place since the last workshop will be outlined; potential collaboration opportunities and next steps may be mentioned. Analysis activities id'd at WS06 include:

- Activity No. 1 – Model inventory and best practices and identify strengths/limitations
- Activity No. 2 – Full Accounting of Impacts
- Activity No. 3 – Define Appropriate Relationships of Economic Parameters in Models

Day 2 - Breakout Session D
Improve Economic Impact Evaluation Tools and Methodologies
Energy Collaborative Analysis Workshop – June 2007

b. State level activity in economic impact evaluation: MA is performing an analysis of clean energy clusters in the state. Will discuss challenges and preliminary outcomes of analysis.

c. State level activity in economic impact evaluation: NYSERDA has conducted an analysis using IMPLAN multipliers and is planning to replicate the analysis using REMI multipliers. Will discuss the similarities/differences in the analysis and results and will compare/contrast IMPLAN and REMI multipliers.

5. Panel Q&A on implementation to address questions and issues.

6. Group discussion. Break-out strategy to be determined. Suggestions are 1) theory vs implementation 2) state vs regional 3) other suggestions?

7. Synthesis and wrap-up to summarize gaps, analysis activities, next steps and potential for collaboration.

Day 2 - Breakout Session D
Improve Economic Impact Evaluation Tools and Methodologies
Energy Collaborative Analysis Workshop – June 2007

Table 1. Proposed Structure for Session Improve Economic Impact Evaluation

Topic	Format/Time	Analysis Question	Potential Speaker	Speaker Status
1. Introduction	Introduction (5 minutes)		Facilitator, Gail Mosey	Confirmed
2. Overview and session objective	Presentation (20 minutes)	What is being done now in the arena of impact evaluation for economics, environment and security? State the session objective.	Russell Lee, ORNL	Confirmed
3. Estimating and analyzing economic impacts	Presentation (25 minutes)	What is the theory behind estimating economic impacts?	Dr. Michael Lahr, Associate Research Professor in the Center for Urban Policy Research at Rutgers University	Confirmed
4. Economic impact evaluation implementation	Presentation (1 hour total, 20 each)	Status update of analysis activities since ECAI WS06. What has been done on the activities id'd at ECAI WS 2006?	Skip Laitner, ACEEE	Confirmed
		How has one state implemented economic impact evaluation tools?	Karl Jessen, Massachusetts Technology Collaborative (MTC)	Likely
		Comparison of results using IMPLAN multipliers vs REMI.	Chris Hall, NYSERDA	Likely
Break	10 minutes			
5. Panel Q&A	Panel (20 minutes)	Panel Q&A on implementation	Panel plus group	NA
6. Group discussion	Breakout groups (30 minutes)	Group discussion, to include id of gaps and need for improvement and future analysis activities and potential for collaboration. <i>Break-out strategy to be determined. Suggestions are 1) theory vs implementation 2) state vs regional 3) other suggestions?</i>	All in breakout groups	NA
7. Synthesis and Wrap-Up	Presentation (20 minutes)	Summarize gaps, analysis activities, next steps and potential for collaboration	Facilitator, Gail Mosey	Confirmed

Day 2 - Breakout Session E
Risk and Uncertainty in Energy Modeling
Energy Collaborative Analysis Workshop – June 2007

Introduction: [Not sure who will do this] (10 minutes)

- Brief definition of risk & uncertainty and its role in decision making
- Overview of the agenda and the speaker bios

Featured Presentations (80 minutes)

Speaker 1: Sam Baldwin, U.S. Department of Energy (20 minutes) CONFIRMED

- Development of systems-based approaches to estimate the technical risk and uncertainty of R&D outputs
- Applying technical and market risk and uncertainty in program and technology benefits estimates

Speaker 2: Michael Leifman, U.S. Department of Energy (20 minutes) CONFIRMED

- The SEDS model methodology and design
- DOE's current and planned applications of the SEDs model in decision making

Thomas doing Risk & Risk Lite?

Speaker 3: Dan Loughlin, U.S. Environmental Protection Agency (20 minutes)
CONFIRMED

- Use of Monte Carlo analysis in MARKAL modeling

Speaker 4: Max Henrion, CEO, Lumina (20 minutes) CONFIRMED

- Applying risk and uncertainty into decision making

Group Discussion (60 minutes)

Risk & Uncertainty Updates: In this section, other professionals working in the area of Risk will provide brief (5-10 minute) updates on their work related to risk and uncertainty. Organizers will communicate this opportunity to participants (including states, regional groups, and other Federal agencies) in advance. (30 minutes)

Group Discussion: Attendees and the facilitator will pose questions that will first be addressed by the featured speakers and then opened to comments from all participants. (30 minutes)

Action Planning (30 minutes)

Issue Identification: What are some major barriers to developing risk & uncertainty modeling or applying methodologies already in place? (15 minutes)

Avenues for Action: Are there actions (currently ongoing or that we could propose) that might help alleviate any of these barriers? (15 minutes)

Plenary Session

Modeling Aggressive Renewable Energy Goals

Energy Collaborative Analysis Workshop – June 2007

Facilitator: Karlynn Cory, NREL

Focus of Session: Many states and organizations are developing aggressive renewable energy and fuel mandates and goals. This session will examine the results from recent studies that analyzed a few of these aggressive goals. It will also discuss the challenges for modeling such high penetration levels, in conventional energy models.

Questions to address:

- What are some aggressive energy goals that need to be modeled?
- What challenges need to be addressed to incorporate these aggressive goals?
- What does a modeler do when their model implodes on these aggressive goals?
- How do you deal with inadequate resource data to back the goal?
- How will the analysis results be used by decision-makers?

Structure of session: *Are there other speakers to invite??*

1. **Overview of aggressive energy goals and the results from analyses.** A brief introduction of the aggressive energy goals and presentations on the resource and economic implications of these goals. (45 minutes)
 - a. EIA is in the process of completing two analytical studies on aggressive energy goals. The first is on the “25 x 25” goal of 25% biofuels by 2025. The second is on a proposal for a national renewable portfolio standard of 15%. Results from both will be released sometime in May or June, prior to the ECAI workshop. 15 minutes - **Andy Kydes, DOE-EIA (invited)**.
 - b. RAND and the Univ. of Tennessee are looking at the possibility of meeting 25% renewable energy by 2025. 15 minutes - **Burt English – UT or Mike Toman – RAND (invited)**
 - c. ACORE put together a “Joint Outlook on Renewable Energy,” in order to push forward aggressive renewable energy goals. 15 minutes – **Mike Ekhardt – ACORE (interested – might send one of his colleagues)**
2. **Implementation challenges.** When analysts attempt to model these aggressive energy goals, they encounter a number of challenges, including proper representation of economic factors, the lack of quality resource data that could support the aggressive goal, and a model that crashed, or would output unrealistic results. A panel will discuss these modeling challenges. (40 minutes)
 - a. **Andy Kydes, DOE-EIA (invited)**
 - b. **Chris Namovicz, DOE-EIA (confirmed)**
 - c. **Burt English – UT or Mike Toman – RAND (invited)**
3. **Q&A, Facilitated group discussion – 25 minutes**
4. **Synthesis and wrap-up – 10 minutes** to summarize gaps, analysis activities, next steps and potential for collaboration.